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EDUCATION

Virginia Polytechnic Institute and State University, Blacksburg, Virginia
Masters Degree in Electrical Engineering 1993.
Bachelors Degree in Electrical Engineering 1989.
Howard Community College, Columbia, Maryland
Associates of Arts Degree in Engineering Science, 1987.

PROFESSIONAL EXPERIENCE

2/00 - present ***Sigma Research and Engineering, Principal Electrical Systems Development Engineer***
Director of the Advanced Photonics Interconnection Manufacturing laboratory and the Technology Validation Assurance Photonics laboratory. Application consulting, characterization testing, laboratory management and electrical engineering systems design and development support to NASA Goddard Space Flight Center, Component Technologies and Radiation Effects Branch, with emphasis on photonic system design, photonics, optics, and interconnect packaging. Current activities include COTS photonics technology assessment, space flight hardware cable assembly manufacturing, and custom fiber optic packaging production for local telecommunications company. Principal investigator for photonics reliability investigations under the NEPP program including fiber laser components, modulators, and assemblies. NASA GSFC center expert on radiation and environmental effects on optical fibers and assemblies. Optical fiber sensor device inventor for biotechnology applications, patent number 6,445,861. Development of sensor system based on patent for medical applications. Responsible for bringing $500K to branch each year for research and manufacturing.

6/96 - 2/00 ***Swales and Associates, Beltsville Maryland***
Senior Electrical Systems Engineer, Contractor for NASA Goddard Space Flight Center.
Application consulting, characterization testing, laboratory management and electrical engineering systems design, development and manufacturing support to NASA Goddard Space Flight Center, with emphasis on photonic system design, photonics, optics, and interconnect packaging. Director of the Advanced Photonics Interconnection Manufacturing laboratory and the Technology Validation Assurance Photonics laboratory. As program manager, electrical engineer and electrical parts engineer delivered an optocoupler radiation experiment (COTS3) to perform in-flight testing of commercial off-the-shelf optocouplers in the space radiation environment, for the Space Technology Research Vehicle (STRV-1d). Principal investigator for qualification of fiber optic passive and photonic devices in support of the NASA Electronic Parts and Packaging Program. General development and characterization testing (thermal, vibration, radiation, etc.) of photonics for space flight projects at GSFC and NASA including Fiber Optic Data Bus (FODB), EO-1, MAP, GLAS, and ISS. Optical fiber sensor design and development. Assembly of an excimer laser lab for detector fabrication in the astrophysics branch. Assembly and development of an optics and fiber optics characterization test laboratory. Web administration, server security and creation of the TVA webpages and library.

4/94 - 6/96 ***Unisys Government Systems, Lanham Maryland,***
Engineer Contracting to NASA Goddard Space Flight Center (GSFC).
Technical Consultant: Fiber optic, interconnection, wire and cable consultant to NASA and GSFC for space flight hardware quality assurance. Quality Assurance Auditor of connector manufacturing plants. Lead Editor and Publisher: 1) NASA Parts Project Office publication: "Space Parts News," 1994; 2) NASA Parts and Packaging publication "EEE Links," 1995; developed marketing strategy via internet that increased demand and distribution. Chairperson 1) NASA Interconnection Standardization Working Group: coordinated NASA wide information on fiber optics, wire, cable and interconnection devices, 1994; 2) EIA Special Task Group on Space Requirements for Electrical Connectors. Researcher: fiber optic sol-gel sensor. Team Facilitator: Supported negotiations for securing fiscal year '96 funding totaling $4 M.

9/90 -10/93 ***NASA Langley Research Center, Hampton, VA, Graduate Researcher***

Under the Graduate Researchers Training Grant with the Spacecraft Controls Branch, developed a deformation sensing system for control of large space antennas and structures using coherent Moiré fringe multiplication with electronic phase detection. Published results in Masters thesis entitled *Incoherent Processing Moiré Contour Sensing with Coherent Processing for Large Structures.*

5/90 - 8/90 ***Crystal Physics Laboratory, M.I.T., Cambridge, MA, Research Engineer***

Investigated the use of barium titanate as a volume holographic memory device. Researched and experimented with extraction and poling of various doped barium titanate crystals. Published results for NASA and FEORC.

10/88 - 5/90 ***Fiber & Electro Optics Research Center (FEORC), Blacksburg, VA***

***Graduate Research Assistant*:** Investigated the use of an infrared Mach-Zehnder integrated optic modulator in optical based strain measurement systems. Initiated and organized a research project on the design of fiber optic sensors for photo-copiers. Contributed to the design of a Michelson based skin friction sensor for high velocity aircraft, experiments in optical fiber based ultrasound detection and the manufacturing of optical fiber based, extrinsic Fabry-Perot strain sensors. Tested commercial optical fiber interconnects. ***Undergraduate Researcher*:** Led fiber optic sensor design project which measured structural vibrations in a model airplane wing using modal domain sensing techniques. Results presented at annual FEORC conference, April 1989.

PRESENTATIONS, PUBLICATIONS, PATENTS, AWARDS

Some Publications and presentations available at:**http://misspiggy.gsfc.nasa.gov/photonics** or at **http://nepp.nasa.gov/photonics**

- Patent 6,445,861 *Sol-Gel Processing to Form Doped Sol-Gel Monoliths Inside Hollow Core Fiber and Sol-Gel Core Fiber Devices made Thereby*, Harry Shaw, Melanie Ott, Michele Manuel, Sept 2002.
- *Radiation Effects on Commercially Available Optical Fiber*, IEEE Nuclear Science and Radiation Effects Conference, NSREC 2002 Data Workshop.
- *Recent Photonics Activities Under the NASA Electronic Parts and Packaging (NEPP) Program*, C. Barnes, M. Ott, A. Johnston, K. LaBel, R. Reed, C. Marshall, T. Miyahira, SPIE Vol. 4823, Photonics for Space Environments VIII, 2002.
- *Characterization of Twelve Channel Optical Fiber Ribbon Cable and MTP Array Connector Assembly for Space Flight Use*, Melanie Ott, Shawn Macmurphy, Patricia Friedberg, SPIE Proceedings Vol. 4732.
- *Fiber Optic Cable Assembly Characterization Studies at NASA Goddard Space Flight Center*, M. Ott, NEPP Workshop Presentation, Houston, TX 2002.
- *Characterization of Integrated Fiber Optical Modulators for Space Flight*, M. Ott, NEPP Workshop Presentation, Houston, TX 2002.
- *Tailoring Cores of Optical Fibers by a Solgel Method*, Harry Shaw, Melanie Ott, Michele Manuel, NASA Tech Briefs, Vol. 25, No. 1, Jan. 2001, p21a.
- *Capabilities and Reliability of LEDs and Laser Diodes*, Melanie Ott, What's New in Electronics, Vol. 20 N. 6, November 2000.
- *Technology Validation of Optical Fiber Cables for Space Flight Environments*, SPIE Proceedings Vol. 4216, Optical Devices for Fiber Communication II, Conference November 8, 2000, Boston MA.
- *NASA Goddard AETD External Support Customer Service Award, Sept. 2000.*
- *TID Radiation Induced Attenuation Testing at 1300 nm Using ISS Requirements on Three Optical Fibers Manufactured by Lucent SFT*, Melanie Ott, September 2000, Report to Lucent and NASA publication for Web.
- Patent application filed entitled *Sol-Gel Processing to Form Doped Sol-Gel Monoliths Inside Hollow Core Optical Fiber and Sol-Gel Core Fiber Devices*, filed August 2000.
- *Lossless 1X2 Optical Switch Monolithically Integrated on a Passive Active Resonant Coupler (PARC) Platform,* IEEE Photonics Technology Letters, Vol. 12, No. 7, July 2000, pp.840-842 S.S Saini, Y. Hu, F. G. Johnson, D. R. Stone, H. Shen, W. Zhou, J. Pamulapati, M. N.Ott, H. C. Shaw, M. Dagenais.
- *Characterization of Commercial Optical Fiber Cables for Space Flight Enviroments at NASA Goddard Space Flight Center*, presentation at the IMAPS/NEPP Advanced Technology Workshop, May 2000.
- Photonics Session Chair for IMAPS/NEPP Advanced Technology Workshop, May 2000.
- *Electron Induced Scintillation Testing of Commerically Available Optical Fibers for Space Flight*, M. Ott Proceedings of the IEEE Nuclear and Space Radiation Effects Conference Data Workshop, July 1999.

- *Assurance of COTS Fiber Optics Cable Assemblies for Space Flight*, M. Ott, Presentation to the Electronic Components for the Commercialization of Military and Space Systems Conference, Los Angeles CA, February 10, 1999.
- *Network Technologies Investigation NASA/GSFC High Speed Fiber Optics Test Bed*, Scott Thomas, Harry Shaw, Melanie Ott, Web publication available in the TVA library: http://misspiggy.gsfc.nasa.gov/tva/library.htm.
- *12 Channel Optical Fiber Connector Assembly: From Commercial Off The Shelf to Space Flight Use*, Melanie Ott, Joy Bretthauer SPIE Vol. 3440, Photonics for Space Environments VI Conference, San Diego, July 1998.
- *Fiber Optic Cable Assemblies for Space Flight II: Thermal and Radiation Effects*, Melanie Ott, SPIE Vol. 3440, Photonics for Space Environments VI Conference, San Diego, July 1998.
- *Assurance of COTS Optical Fiber Cable Assemblies for Space Flight*, Presentation to the Technologies Assurance Conference, May 1998, NASA Lewis Research Center.
- *COTS3 Photonics, Optocoupler Experiment on STRV-1d*, presentation to the Single Event Effects Symposium, Manhattan Beach CA. April 1998.
- *Fiber Optic Cable Assemblies for Space Flight II: Thermal and Radiation Effects*, Melanie Ott, presentation at the JPL Packaging Workshop January 1998.
- *On the Suitability of Fiber Optic Data Links in the Space Radiation Environment: A Historical and Scaling Technology Perspective*, Ken LaBel, Cheryl Marshall, Paul Marshall, Philip Luers, Robert Reed, Melanie Ott, Christina Seidleck and Dennis Andrucyk, IEEE Aerospace Conference, Vol. 4, pp. 421-434.
- *Fiber Optic Cable Assemblies for Space Fight: Issues and Remedies* M. Ott, J. Plante, J. Shaw, M. A. Darrin, AIAA/SAE World Aviation Congress, Oct. 1997.
- *Fiber Optic Cable Assemblies: Thermal and Radiation Effects*, Presentation to the Advanced Electrical Interconnection System Conference, Williamsburg, Oct. 1997.
- *Radiation Hardness of Optical Fiber*, presentation to the Space Parts Working Group, Sept, 1997
- *Reliability of Semiconductor Lasers and LEDs*, NASA Web Publication, 1997.
- *Fiber Optic Cable Assembly Qualification at GSFC*, Presented at the JPL Electronic Packaging Workshop, Pasadena CA, November 1996.
- Invention Disclosure filed with NASA for family of fiber optic sol-gel sensors, 1996.
- *Guide of Space Grade Requirements for Electrical Connectors*, Electronic Industries Association Publication, EIA-710, 1994.
- *Incoherent Projection Moiré Contour Sensing with Coherent Processing for Large Structures*, Masters thesis published by Virginia Polytechnic Institute and State University. 1993.
- "*Fiber Optic Displacement Sensors for Aircraft Skin Friction Measurements: a Feasibility Study*", coauthor on FEORC publication.
- "*Applications of Fiber Optic Sensors in Model Aircraft"* presention at the Fiber and Electro Optics Research Center Conference, Blacksburg, VA, April, 1989.

Under the publication *EEE Links*: URL address, http://misspiggy.gsfc.nasa.gov/ctre/hq/eee_links/ "A Future for Plastic Fiber Optics," "Conference Report to the ISWG,"
"Two New Companies on the Cutting Edge of Fiber Optic Technology," Vol. 1, No. 1, 1995.
"The ISWG Information Exchange," Quarterly Column Vol. 1, No. 1-4, 1995, Vol 2. No. 1-3, 1996.
"Evolution of the MIL-STD-1773 Bus 20 Mb/s Protocol Chip," "Is Radiation An Issue for Fiber Optics?" Vol. 1, No. 2, 1995.

Under the publication *Space Parts News*, URL address, http://misspiggy.gsfc.nasa.gov/ctre/hq/eee_links/
"Communication Channels Opened," "NASA ISWG Makes Progress," Vol. 8, No. 3, 1994.
"Conference Report to the ISWG," "A Channel to the World," "New Hybrid Wire," Vol. 8, No. 4, 1994.
"ISWG Information Exchange," Vol.8, No. 4 & 5, 1994.
"Optical Fiber Workmanship Standard," Vol. 8, No. 5, 1994.

PROFESSIONAL MEMBERSHIPS

Society for Automotive Engineers (SAE) AE-8C1&2 (interconnection), AS-3 (fiber optics),
GSFC Women's Advisory Committee, Chair of Diversity Dyanmics Subcommittee,
Electronic Industries Association (EIA) CE 2.0, 2.1
Chair of Space Requirements Task Group (Interconnection),
Telecommunications Industry Association (TIA) (Fiber Optics),
SPIE, F-22/RAH Fiber Optic Working Group, NAVWAG, IEEE, OSA. 1989 -1993.

LANGUAGES, SOFTWARE, ADDITIONAL TRAINING

Computer Languages and Software: LabView, FORTRAN, Pascal, Assembly, Basic, MATLAB, HTML, TCP/IP, CCD data imaging software, Web Server Security and Administration, , Software Installation on Sun Solaris. **Computer and Operating Systems**: UNIX v. 4, MS DOS, Macintosh, Windows 3, Win '95 & 98, Win NT, Linux. **Other Languages**: American Sign Language **Training** Labview Basics 1 & DAQ Courses**,** *Reliability Through Environmental Stress Screening,* Unisys course, 1994, ISO-9000 training 1995, SPIE and OSA short courses: Reliability of Semiconductor Lasers, Optical Materials for Space, Photonics in Satellite Communications, Optoelectronic Packaging, LEDs and Lasers Reliability, IEEE NSREC Short Course 1999.